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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,254	10/18/2001	Toshihiko Suenaga	Q66783	5976

7590 09/27/2004

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EXAMINER

HODGE, ROBERT W

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/981,254	SUENAGA ET AL.	
	Examiner	Art Unit	
	Robert Hodge	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 3-10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date 4/16/04 <u>8/6/04</u> , <u>7-1-03</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claims 3-10 are objected to because of the following informalities: In reference to claims 3 - 6 the phrases "in a condition in which" and "in which" are used several times. These phrases are grammatically and/or syntactically incorrect. It is suggested that the term --wherein-- be used in place of "in a condition in which" or "in which" for more clarity.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 8-9 and 11 are rejected under 35 U.S.C. 102(b) as being unpatentable by Steck et al. U.S. Patent No. 5,464,700 (hereinafter referred to as Steck et al.).

Steck et al. teaches "A method for mounting a seal in a fuel cell comprising: preforming the seal into a predetermined shape [column 3, lines 7-15 and claim 9]; setting the seal at the mounting portion of the membrane electrode assembly; and integrally forming the seal with the membrane electrode assembly [column 3, lines 15-20 and claim 11]", as recited by claim 1.

Steck et al. also teaches the types of materials used in forming the seal specifically vulcanized rubber, thermoplastics, liquid materials of the cold setting type and thermosetting type (column 3, lines 7-20 and column 5, lines 9-10).

Steck et al. further teaches "A fuel cell formed by layering plural membrane electrode assemblies via a separator plate respectively [claims 11, 13 and 16], wherein the membrane electrode assembly is mounted with a seal [abstract] by a method for mounting a seal in a fuel cell [claim 16]" as recited by claim 11.

In interpreting the claims, the examiner gives weight to the membrane electrode assembly recited in the preamble in as much as it includes an electrolyte membrane between a first electrode and a second electrode that has a seal mounting portion.

However the preamble recitation of "a separator plate layered on both surfaces of the membrane electrode assembly so as to form gas passage; and a frame-shaped separator plate held between the membrane electrode assembly and the separator plate so as to seal the gas passage in air tight" has not been given weight because the method as claimed, does not require those structures to be present. The applicant should be aware that those two recitations would be given weight if applicant was claiming a method of mounting seals in a fuel cell stack or a fuel cell assembly, however the applicant is only claiming a method of mounting a seal within an individual fuel cell.

The applicant should be aware that the above statement regarding the preamble in claim 1 applies to all of the independent claims in this application.

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3. Claims 2-7 and 10 are rejected under 35 U.S.C. 102(b) as being unpatentable by Kaneko et al. Japanese Published Application No. 09-147891 (hereinafter referred to as Kaneko et al.).

In reference to claims 2 and 6-7 Kaneko et al. teaches "A method for mounting a seal in a fuel cell comprising: using a hot pressing die having a first die and a second die [page 2, paragraphs 3, 5 and 6]; setting the first electrode in the first die; preforming the seal into a predetermined shape [page 2, 1st and 2nd paragraphs] and coating an adhesive on a portion thereof with which the electrolyte membrane is contacted [page 2, 3rd paragraph]; setting the seal at a circumference of the first electrode in the first die [page 2, 1st and 2nd paragraph]; layering the electrolyte membrane on the adhesive coated on the seal and the first electrode [abstract]; layering the second electrode on the electrolyte membrane [abstract]; and close-contacting the first and second electrodes, the electrolyte membrane, and the seal by holding them with the first and second dies [abstract], and integrally forming them by hot pressing [page 2, paragraphs 3, 5 and 6]" as recited in claim 2. Kaneko et al. also teaches "A method for mounting a seal in a fuel cell according to claim 2, wherein a reinforcement member is inserted into the seal in a condition in which a portion thereof is exposed [third page, 1st paragraph], and an adhesive is coated on the exposed portion of the reinforcement member [page 2, 3rd paragraph]" as recited in claim 6. Kaneko et al. further teaches "A method for mounting a seal in a fuel cell according to claim 2, wherein a reinforcement member is inserted into the seal [third page, 1st paragraph], and an adhesive is coated on the seal [page 2, 3rd paragraph]" as recited in claim 7.

In reference to claims 3 and 10 Kaneko et al. teaches "A method for mounting a seal in a fuel cell using a hot pressing die having a first die and a second die [page 2, paragraphs 3, 5 and 6]; setting the first electrode in the first die; preforming the seal into a predetermined shape [page 2, 1st and 2nd paragraphs] in a condition in which a reinforcement member is inserted into the seal and an inner portion of the reinforcement member projects inwardly [third page, 1st paragraph]; layering the seal at a circumference of the first electrode in the first die in a condition in which the inner projected portion of the reinforcement member overlaps with a portion of the first electrode [abstract]; layering the electrolyte membrane on the first electrode in a condition in which the inner projected portion of the reinforcement member is held between the first electrode and the electrolyte membrane [abstract]; layering the second electrode on the electrolyte membrane [abstract]; and close-contacting the first and second electrodes, the electrolyte membrane, the seal, and the reinforcement member by holding them with the first and second dies [abstract], and integrally forming them by hot pressing [page 2, paragraphs 3, 5 and 6]" as recited by claim 3. Kaneko et al further teaches "A method for mounting a seal in a fuel cell according to claim 3, wherein the reinforcement member is a sheet formed from a resin or a metal, or a wire made from a resin or a metal [third page, 1st paragraph]" as recited by claim 10.

In reference to claim 4 Kaneko et al. teaches "A method for mounting a seal in a fuel cell using a hot pressing die having a first die and a second die [page 2, paragraphs 3, 5 and 6]; setting the first electrode in the first die; preforming the seal into a predetermined shape in which a inner portion thereof projects inwardly [page 2, 1st and

2nd paragraphs]; layering the seal at a circumference of the first electrode in the first die in a condition in which the inner projected portion of the seal overlaps with a portion of the first electrode [abstract]; layering the electrolyte membrane on the first electrode in a condition in which the inner projected portion of the seal is held between the first electrode and the electrolyte membrane [abstract]; layering the second electrode on the electrolyte membrane [abstract]; and close-contacting the first and second electrodes, the electrolyte membrane, and the seal by holding them with the first and second dies [abstract], and integrally forming them by hot pressing [page 2, paragraphs 3, 5 and 6]" as recited by claim 4.

In reference to claim 5 Kaneko et al. teaches "A method for mounting a seal in a fuel cell using a hot pressing die having a first die and a second die [page 2, paragraphs 3, 5 and 6]; preforming the seal into a predetermined shape and coating an adhesive on a portion thereof with which the electrolyte membrane is contacted [page 2, paragraphs 1-3], setting the seal in the first die [abstract]; preforming the membrane electrode assembly so as to expose a portion of the electrolyte membrane toward a surface of the membrane electrode assembly [page 2, 1st and 2nd paragraphs]; setting the membrane electrode assembly in the first die in a condition in which the exposed portion of the electrolyte membrane overlaps with the adhesive coated on the seal [abstract]; close-contacting seal and the membrane electrode assembly by holding them with the first and second dies [abstract], and integrally forming them by hot pressing [page 2, paragraphs 3, 5 and 6]" as recited by claim 5.

4. Claims 1 and 11 are further rejected under 35 U.S.C. 102(b) as being unpatentable by Dodge U.S. Patent No. 5,336,570 (hereinafter referred to as Dodge).

Dodge teaches "A method for mounting a seal in a fuel cell comprising preforming the seal into a predetermined shape [claim 14 step e]; setting the seal at the mounting portion of the membrane electrode assembly [Abstract lines 5-8 and column 3, lines 22-28]; and integrally forming the seal with the membrane electrode assembly [Abstract lines 5-8 and column 3, lines 22-28]" as recited by claim 1. Dodge further teaches "A fuel cell formed by layering plural membrane electrode assemblies via a separator plate respectively, wherein the membrane electrode assembly is mounted with a seal by a method for mounting a seal in a fuel cell [claims 14, 21, 28 and 29]" as recited by claim 11.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- a. U.S. Patent No. 5,509,942 to Dodge, teaches a process to assemble a fuel cell assembly as described in U.S. Pat No 5458989
- b. U.S. Patent No. 6,699,613 to Inoue et al., teaches a fuel cell formed from a membrane electrode assembly with a solid polymer membrane using a seal between them that is then pressed.
- c. Japanese Published Patent Application No. 05-283093 to Kahata et al., teaches the manufacture of a fuel cell with frame-like separators using a seal with thermo compression, creating an airtight seal.

d. Japanese Published Patent Application No. 08-078028 to Dogshi, teaches the manufacture of a fuel cell with thermosetting resin used to seal the membrane under pressure and heat treatment.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RWH 9-14-04


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PRIMARY EXAMINER
GROUP 1746